

WHAT IS CLAIMED IS:

1. A method of screening a nuclear transcription factor ligand for the ability to modulate estrogen activation at an AP-1 site, said method comprising the steps of:

a) providing a first cell containing an estrogen receptor, a receptor for said nuclear transcription factor ligand, and a promoter comprising an AP-1 site which regulates expression of a first reporter gene;

b) contacting said first cell with said transcription factor ligand and with a compound having AP-1 mediated estrogenic activity; and

c) detecting expression of said first reporter gene.

2. The method of claim 1, further comprising the steps of:

d) providing a second cell containing an estrogen receptor, a receptor for said nuclear transcription factor ligand, and a promoter comprising an estrogen response element (ERE) that regulates expression of a second reporter gene;

e) contacting said second cell with said transcription factor ligand and with said compound having AP-1 mediated estrogenic activity; and

f) detecting expression of said second reporter gene.

3. The method of claim 2, wherein said first cell and said second cell are the same cell.

4. The method of claim 1, further comprising the steps of:

d) providing a second cell containing a cognate receptor of said transcription factor ligand, and a promoter comprising a response element for said cognate receptor that regulates expression of a second reporter gene;

e) contacting said second cell with said transcription factor ligand and with said compound having AP-1 mediated estrogenic activity; and

f) detecting expression of said second reporter gene.

5. The method of claim 4, wherein said first cell and said second cell are the same cell.

6. The method of claim 1, wherein said nuclear transcription factor ligand is selected from the group consisting of a glucocorticoid, a progestin, vitamin D, retinoic acid, an androgen, a mineralcorticoid, and a prostaglandin..

7. The method of claim 1, wherein said cognate receptor is selected from the group consisting of an estrogen receptor, a glucocorticoid receptor, a progestin PR-A receptor, and progestin PR-B receptor, androgen receptor, a mineralcorticoid receptor, and a prostaglandin receptor.

8. The method of claim 1, wherein said cell expresses said estrogen receptor from a heterologous DNA.

9. The method of claim 1, wherein said cell expresses said cognate receptor from a heterologous DNA.

10. The method of claim 1, wherein said cell expresses an AP-1 protein from a heterologous DNA.

11. The method of claim 10, wherein said AP-1 protein is c-jun.

12. The method of claim 1, wherein said nuclear transcription factor is a progestin; and said cognate receptor is a progestin receptor.

13. The method of claim 1, wherein said nuclear transcription factor is a glucocorticoid and said cognate receptor is a GR receptor.

14. A method of screening an agent for the ability to alter modulation of estrogen activation at an AP-1 site by a nuclear transcription factor ligand, said method comprising the steps of:

a) providing a first cell containing an estrogen receptor, a receptor for said nuclear transcription factor ligand, and a promoter comprising an AP-1 site which regulates expression of a first reporter gene;

b) contacting said first cell with said transcription factor ligand, with a compound having AP-1 mediated estrogenic activity, and with said agent; and

c) detecting expression of said first reporter gene.

15. The method of claim 14, further comprising the steps of:

d) providing a second cell containing an estrogen receptor, a receptor for said nuclear transcription factor ligand, and a promoter comprising an estrogen response element (ERE) that regulates expression of a second reporter gene;

5 e) contacting said second cell with said transcription factor ligand and with said compound having AP-1 mediated estrogenic activity; and

f) detecting expression of said second reporter gene.

16. The method of claim 15, wherein said first cell and said second cell are the same cell.

10 17. The method of claim 14, wherein said nuclear transcription factor is selected from the group consisting of a glucocorticoid, a progestin, vitamin D, retinoic acid, an androgen, a mineralcorticoid, a prostaglandin.

15 18. The method of claim 14, wherein said cognate receptor is selected from the group consisting of an estrogen receptor, a glucocorticoid receptor, a progestin PR-A receptor, progestin PR-B receptor, an androgen receptor, a mineralcorticoid receptor, and a prostaglandin receptor.

19. The method of claim 14, wherein said cell expresses said estrogen receptor from a heterologous DNA.

20 20. The method of claim 14, wherein said cell expresses said cognate receptor from a heterologous DNA.

21. The method of claim 14, wherein said cell expresses an AP-1 protein from a heterologous DNA.

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1 22. The method of claim 21, wherein said AP-1 protein is c-jun.

23. The method of claim 21, wherein said nuclear transcription factor is a progestin; and said cognate receptor is a progestin receptor.

5 24. The method of claim 21, wherein said nuclear transcription factor is a glucocorticoid and said cognate receptor is a GR receptor.

25. A method of screening an orphan receptor for the ability to modulate estrogen activation at an AP-1 site, said method comprising the steps of:

10 a) providing a first cell containing an estrogen receptor, and orphan receptor, and a promoter comprising an AP-1 site that regulates expression of a first reporter gene;

b) contacting said first cell with a compound having AP-1 mediated estrogenic activity; and

c) detecting expression of said first reporter gene.

15 26. A kit for screening a nuclear transcription factor ligand for the ability to modulate estrogen activation at an AP-1 site, said kit comprising:

a first cell containing an estrogen receptor, a receptor for said nuclear transcription factor ligand, and a promoter comprising an AP-1 site which regulates expression of a first reporter gene; and

20 instructional materials containing protocols for the practice of the assay methods of claim 1.

27. The kit of claim 26, wherein said instructional materials further contain protocols for the practice of the assay method of claim 2.

25 28. The kit of claim 26, wherein said instructional materials further contain protocols for the practice of the assay method of claim 4.